

PRODUCT DATA SHEET

WMA-SMQ69HT

High-Temperature Water-Soluble Solder Paste

Introduction

WMA-SMQ69HT is a halide-free, water-soluble solder paste formulated for use with high-temperature alloys. This product was designed to have superior humidity and slump resistance. After reflow at temperatures up to 350°C in air or nitrogen, no ionic contamination remains after cleaning with plain water. **WMA-SMQ69HT** meets ANSI/J-STD-004 and -005 specifications, as well as Bellcore criteria.

Features

- Formulated for high-temperature alloys
- Superior humidity and slump resistance
- Excellent wetting reflow in air or nitrogen
- Water-soluble residue
- Consistent fine-pitch printing
- Halide-free

Alloys

Indium Corporation manufactures low-oxide spherical powder composed of SnPb, SnPbAg, and many other alloys covering a wide temperature range. Typical metal loads range from 85–90% for standard alloy compositions. The actual metal percent is application-dependent and varies with alloy density. Solder powder is available in Type 1 through Type 4 classifications per ANSI/J-STD-005 for printing and dispensing applications. Please call us for information on other mesh sizes and alloys.

Type	Pitch	Mesh Size	Solder Powder Diameter	
			Microns	Inches
1	STD	-100/+200	75–150	.0029–.0059
2	STD	-200/+325	45–75	.0017–.0029
3	Fine	-325/+500	25–45	.0010–.0017
4	Ultra-Fine	-400/+635*	20–38	.0008–.0015

*-400/+500 also available.

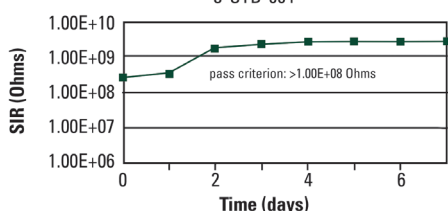
Storage and Handling Procedures

WMA-SMQ69HT has a shelf life of 6 months when stored at <5°C. Solder paste should be allowed to reach ambient working temperature prior to use. Actual time to reach thermal equilibrium will vary with container size. In order to maximize the opened jar paste performance, the paste should be covered when not in use.

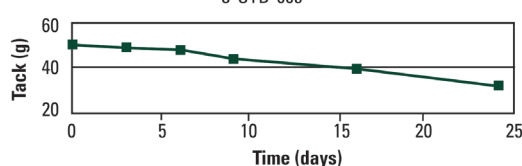
Bellcore and J-STD Tests and Results

Test	Result	Test	Result
J-STD-004 (IPC-TM-650)		J-STD-005 (IPC-TM-650)	
Flux Type Classification	M0	Typical Solder Paste Viscosity (Sn10, 92%, Type 3) Brookfield (5rpm) Malcom (10rpm)	1,150kcps 2,200 poise
Flux-Induced Corrosion (Copper Mirror)	Pass	Typical Thixotropic Index: SSF (ICA Test)	-0.60
Presence of Halide – Silver Chromate – Fluoride Spot Test	Pass Pass	Slump Test	Pass
Non-Volatile Content (Solids Content)	95%	Solder Ball Test	Pass
SIR	Pass	Typical Tackiness	50g
Electromigration (Bellcore Test)	Pass	Wetting Test	Pass
Acid Value	68	<i>All information is for reference only. Not to be used as incoming product specifications.</i>	
Post-Reflow Residue (ICA Test)	45%		

SIR Test Results
J-STD-004



Tack vs. Time Data
J-STD-005



From One Engineer To Another®



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Printing

Stencil Material:

Stainless Steel, Brass, or Nickel Plated

Stencil Thickness:

0.050"/1.27mm pitch:	0.010"/0.254mm to 0.008"/0.203mm
0.025"/0.635mm pitch:	0.008"/0.203mm to 0.006"/0.152mm
0.020"/0.508mm pitch:	0.006"/0.152mm to 0.004"/0.102mm
0.016"/0.406mm pitch:	0.005"/0.127mm to 0.004"/0.102mm
0.012"/0.305mm pitch:	0.004"/0.102mm to 0.003"/0.076mm

Squeegee:

80–90 Shore A Durometer Rubber or Stainless Steel Blade

Squeegee Speed:

25.4–50.8mm per second for typical fine-pitch printing. Faster or slower speeds can be used depending on process requirements.

Squeegee Pressure:

0.018–0.027kg/mm of blade length

Cleaning

The residue is easily cleaned with plain water at a minimum of 40psi (2.7bar) and 55°C. These parameters may be adjusted to accommodate various board geometries and the efficiency of the cleaner.

Stencil Cleaning is best performed using plain hot water. Cleaning in common stencil cleaners or isopropyl alcohol is also effective.

Compatible Products

- **Rework Flux:** TACFlux® 019

Technical Support

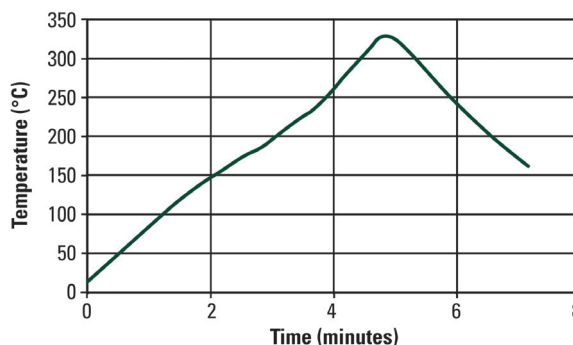
Indium Corporation's internationally experienced engineers provide in-depth technical assistance to our customers. Thoroughly knowledgeable in all facets of Materials Science as it applies to the electronics and semiconductor sectors, Technical Support Engineers provide expert advice in solder properties, alloy compatibility and selection of solder preforms, wire, ribbon, and paste. Indium Corporation's Technical Support Engineers provide rapid response to all technical inquiries.

Safety Data Sheets

The SDS for this product can be found online at <http://www.indium.com/sds>

Reflow

Recommended Profile:



This profile is for use with Indalloy®151 (92.5Pb/5.0Sn/2.5Ag) and Sn10 (88Pb/10Sn/2Ag) alloys and will serve as a general guideline in establishing a reflow profile for your process. Adjustments will be necessary for use with other alloys. Various board geometries, densities, and oven types may require further profile adjustments.

The typical reflow profile encompasses four basic stages:

1. Preheat: 1–2°C/second rate of rise
2. Soak or dryout: 30–60 seconds
3. Reflow: Peak temperature should be 10–40°C above the liquidus of the alloy for 30–60 seconds.
4. Cool down: <4°C/second

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All of Indium Corporation's solder paste and preform manufacturing facilities are IATF 16949:2016 certified. Indium Corporation is an ISO 9001:2015 registered company.

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